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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,136	10/26/2001	Fred T. Clewis	CHA920010006US1	7444

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EXAMINER

RAMPURIA, SATISH

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,136

Applicant(s)

CLEWIS ET AL.

Examiner

Satish S. Rampuria

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/25/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application filed on 10/26/2001.
2. Claims 1-20 are pending.

Information Disclosure Statement

3. An initialed and dated copy of Applicant's IDS form 1449 received on 03/25/2002 is attached to the instant Office action.

The information disclosure statement filed 03/25/2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The copy of NPL documents as follows are not found with the application .

"Keqin, L., "A method for evaluating the expected load of dynamic tree embeddings in hypercubes" International Journal of Foundations of Computer Science, Vol. 11, No. 2, pp. 207-230, June 2000."

"Wagner, IA, Lindenbaum M., Bruckstein, AM, "ANTS: agents on networks, trees, and subgraphs" Future Generation Computer Systems, Vol. 16, No. 8, pp. 915-926, June 2000."

"Wirth, HC, Steffan, J., "On minimum diameter spanning trees under reload cost, " Graph-Theoretic Concepts in Computer science, 25th International workshop, WG'99, Proceedings (Lecture Notes in Computer Science Vol. 1665), Ascona, Switzerland, June 17-19, 1999."

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“Kerqin, L., "Barril shifts - a close approximation to the completely connected network in supporting dynamic tree structured computations," Proceedings of the IEEE 1997 National Aerospace and Electronics Conference, Dayton, Ohio, July 14-17, 1997.”

“Shade, J., et al., "Hierarchical image caching for accelerated walkthroughs of complex environments," Computer Graphics Proceedings, SIGGRAPH '96, New Orleans, LA, August 4-9, 1996.”

Double patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 4, 8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3, 4, and 15 of US Patent Application No. 10/039725 (hereinafter called '725 Application).

This is an obviousness-type double patenting rejection.

The correspondence between the patented claims and the instant claims are as follows:

Instant claim	'725 Application claim
1	3
4	4
8	15

More specifically,

- Claims 1, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over '725 Application in view of US Patent No. 6,654,761 to Tenev et al. (hereinafter called Tenev).

Per claim 1:

This claim recites a graph walking system, comprising: a binding system for binding a graph observer with a graph, for binding node patterns to node observers to generate at least one node pairing, and for binding the graph observer to at least one node pattern-node observer pairing; graph walking logic for systematically walking through nodes within the directed non-cyclic graph; a pattern testing system for determining if an encountered node matches one of the node patterns; and a pruning system that can

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deactivate the graph observer with respect to sub-nodes of the encountered node if a bound node observer determines that there is no interest in the sub-nodes which steps are recited in the claim 3 of '725 Application. '725 Application does not recite other features recited as follows in the Instant claim. But it would have been obvious for one of the ordinary skill in the art to modify these features as modified by Tenev.

The features as follows does not recited on claim 1 of '725 Application.

However, Tenev discloses in an analogous computer system an event manager for generating an encountered event when one of the node observers is bound to a matching node pattern (col. 8, lines 20-23 "Structure 250... every node and link in memory to be specified by an ID... be validated in constant time and nearly always created in constant time" and col. 12, lines 54-55 "The test in box 384 compares the last node ID with the saved top node ID").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method validating the node and links by comparing the node ID as taught by Tenev in corresponding to graph walking logic, a pattern testing system, and a pruning system as taught by '725 Application. The modification would be obvious because of one of ordinary skill in the art would be motivated to compare/map the node as walking through the nodes to make sure the node is else remove from the memory as suggested by Tenev (col. 3, lines 15-30) .

Per claim 4:

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This claim recites a graph walking system for steps walking in a directed non-cyclic graph, the pruning system can reactivate a deactivated graph observer after the sub-nodes of the encountered node have been walked, the similar limitation as recited in claim 4 of '725 Application.

Per claim 8:

This claim recites for analyzing a graph of hierarchical data for steps a system for binding a plurality of graph observers to a graph, wherein each graph observer is further bound to a set of node patterns and a set of node observers; graph walking logic for systematically walking through nodes within the graph which steps are recited in claim 15 of '725 Application. '725 Application does not recite other features recited as follows in the Instant claim. But it would have been obvious for one of the ordinary skill in the art to modify these features as modified by Tenev.

The features as follows does not recited on claim 1 of '725 Application.

However, Tenev discloses in an analogous computer system a first pruning system that can be instructed by a node observer bound with an associated graph observer (col. 9, lines 45-46 "The routines can initially test whether the navigation signal is acceptable, in box 302"); and a second pruning system that can instruct the graph walking logic not to walk the set of sub-nodes for the encountered node (col. 9, lines 57-60 "walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230, during which nodes are marked with counts to indicate that they have been walked").

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The feature to instruct a pruning system would be obvious for the reasons set forth in the rejection of claim 1.

Claim Rejections - 35 USC § 101 Utility

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 12-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are non-statutory because they recite components of analyzing a graph, representing functional descriptive material without a computer readable medium or computer implemented, program per se are not tangibly embodied. Claims 12-16 thus amounts to only abstract idea and are nonstatutory.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claim 1-3 and 7-20 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,654,761 to Tenev et al. (hereinafter called Tenev).

Per claims 1, 2, and 5:

Tenev disclose:

- A graph walking system (col. 7, lines 52-53 "Walker routines" also fig. 4), comprising: a binding system for binding a graph observer with a graph (col. 8, lines 8-9 "data structure for mapping from a pair of node"), for binding node patterns to node observers to generate at least one node pairing (col. 8, lines 20-21 "Structure 250 makes it possible for every node and link in memory to be specified by an ID"), and for binding the graph observer to at least one node pattern-node observer pairing (col. 8, lines 8-10 "data structure for mapping from a pair of node to a link ID");
- graph walking logic for systematically walking through nodes within the directed non-cyclic graph (col. 9, lines 57-58 "walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230");
- a pattern testing system for determining if an encountered node matches one of the node patterns (col. 12, lines 57-60 "The test in box 386 first tests the node's orient and map counts to determine whether the node was walked during the most recent orienting or mapping walk in box 306 in FIG. 7") ;
- an event manager for generating an encountered event when one of the node observers is bound to a matching node pattern (col. 12, lines 54-55 "The test in box 384 compares the last node ID with the saved top node ID"); and

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- a pruning system that can deactivate the graph observer with respect to sub-nodes of the encountered node if a bound node observer determines that there is no interest in the sub-nodes (col. 14, lines 35-39 "Node removal begins when grapher routines 220 receive a call from memory management routines 226 to remove a node in box 450" also fig. 11 and related discussion) .

Per claim 3:

The rejection of claim 1 is incorporated, and further, Tenev disclose:

- wherein the graph walking logic walks through the graph in a top down hierarchal manner (col. 10, lines 3-5 "walker routines 222 can walk upward along a path from a selected node of the tree to the root node, then walk back down the path to orient the selected node").

Per claim 6:

The rejection of claim 5 is incorporated, and further, Tenev disclose:

- wherein the completed event can cause the graph walking logic to repeat the walk through the sub-nodes (col. 14, lines 59-61 "Then grapher routines 220 begin an outer iterative loop that goes through the node's linked list of child links, continuing until the test in box 460 finds no more child links").

Per claim 7:

The rejection of claim 1 is incorporated, and further, Tenev disclose:

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- wherein the pruning system (col. 14, lines 35-39 “Node removal begins when grapher routines 220 receive a call from memory management routines 226 to remove a node in box 450”) can further cause the graph walking logic to bypass walking of the sub-nodes if the graph observer has been deactivated and no other active graph observers exist (col. 9, lines 57-60 “walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230, during which nodes are marked with counts to indicate that they have been walked”).

Per claims 8, and 11:

Tenev disclose:

- a system for binding a plurality of graph observers to a graph (col. 8, lines 8-9 “data structure for mapping from a pair of node”), wherein each graph observer is further bound to a set of node patterns and a set of node observers (col. 8, lines 20-21 “Structure 250 makes it possible for every node and link in memory to be specified by an ID”);
- graph walking logic for systematically walking through nodes within the graph (col. 9, lines 57-58 “walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230”);
- a first pruning system that can be instructed by a node observer bound with an associated graph observer to deactivate (col. 9, lines 45-46 “The routines can initially test whether the navigation signal is acceptable, in box 302”) the associated graph observer until a set of sub-nodes for the encountered node has

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been walked (col. 9, lines 57-60 “walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230, during which nodes are marked with counts to indicate that they have been walked”); and

- a second pruning system that can instruct the graph walking logic not to walk the set of sub-nodes for the encountered node (col. 9, lines 57-60 “walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230, during which nodes are marked with counts to indicate that they have been walked”).

Per claim 9:

The rejection of claim 8 is incorporated, and further, Tenev disclose:

- wherein the second pruning system(col. 14, lines 35-39 “Node removal begins when grapher routines 220 receive a call from memory management routines 226 to remove a node in box 450”) will cause the set of sub-nodes not to be walked only if all of the plurality of graph observers have been deactivated (col. 9, lines 57-60 “walker routines 222 are called to perform one or more walking traversals of directed graph data structure 230, during which nodes are marked with counts to indicate that they have been walked”).

Per claim 10:

The rejection of claim 8 is incorporated, and further, Tenev disclose:

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- a pattern testing system for determining if the encountered node matches one of the node patterns (col. 12, lines 54-55 "The test in box 384 compares the last node ID with the saved top node ID").

Claims 12, 14, 15, and 16 are the method claim corresponding to system claim 8 and rejected under the same rational set forth in connection with the rejection of claim 8 above.

Claim 13 is the method claim corresponding to system claims 10 and 11 and rejected under the same rational set forth in connection with the rejection of claims 10 and 11 above.

Claims 17, 19, and 20 are the computer program product claim corresponding to system claim 1 and rejected under the same rational set forth in connection with the rejection of claim 1 above.

Claim 18 is the computer program product claim corresponding to system claim 7 and rejected under the same rational set forth in connection with the rejection of claim 7 above.

Substantially as claimed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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The following patent is cited to further show the state of the art with respect to directed graph walking system and method.

US Patent No. 6,681,221 to Jacobs

US Publication No. 2002/0162096 to Robinson

US Patent No. 6,055,539 to Singh et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satish S. Rampuria whose telephone number is 703-305-8891. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Satish S. Rampuria
Patent Examiner
Art Unit 2124
08/23/2004



TODD INGBERG
PRIMARY EXAMINER